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I. *An Account of some new Experiments, relating to the different, and sometimes contrary Motion of the Sap in Plants and Trees, made by Thomas Fairchild, Gardener at Hoxton.*

I HAD the Honour, some Years ago, to shew some Experiments before the *Royal Society*, and they were pleased to allow the Experiments to be new and useful; which encouraged me to try further, and bring more Experiments, in order to shew the Course of the Sap; which I find, by Experience, will be so useful, that I can make barren Trees fruitful, and decaying Trees healthful, and render the System of Gardening and Planting more useful to the Publick.

The first Plant I shewed was the *Laureola*, grafted upon the *Mezereon*, and the *Evergreen Oak of Virginia* upon the common *English Oak*; both which hold their Leaves all the Winter, and are in good State and flourishing, though grafted on Plants that drop their Leaves in Winter; which plainly proves that the Juices rise upwards, in Winter, in those Plants that drop their Leaves, otherwise the *Evergreens* that are grafted on them would soon perish.

I believe by grafting the Variety of foreign Oaks on the *English*, we might make the Timber more firm and lasting, than it is in its own Nature, when raised from foreign Acorns: For as the Crab-Stock maketh the Wood of the Apple-Tree more firm and lasting than that on the Apple-Stock, and the Peaches and Almonds, budded on Plums, are more lasting than those on Peach-Stocks; so by the contrary Rule, all firm Timber,

grafted on spungy Stocks, would be made worse than it would be on its own Bottom. For Example, If that which is called the *English Elm*, should be grafted on that which is called the *Dutch*, it would partake of abundance of the spungy Juices of the Stock, whereby the Timber would become unfit for the Purposes it is now used for.

The first Experiment, I have to offer to your Observation at present, is made on the *New England Cedar*, or rather *Juniper*, grafted on the *Virginia*; and what is remarkable in it, is, That the Branch, which is grafted, is left several Inches below the Grafting, which Part continues growing as well as the upper Part above the Grafting.

The second Plant is the *Viburnum*, with the Top planted in the Ground, which is become Roots; and the Roots turned up, which are become Branches. But whether the same Vessels, which fed the Branches, have changed their Course, or whether the Juices go up and down in the same Vessels, I shall leave to better Judgments; but I find the Plant in as good State of growing, as it was in its natural State.

The third Experiment is made on a Pear-Tree, which I enarched upon two Pear-Stocks, in *March 1721-2.* which is now in a good flourishing State, with a Branch in Blossom, and receiveth no Nourishment but by the two enarched Branches, the Root being out of the Ground; and tho' it was done above two Years ago, it is now shooting Suckers out of the Root, which proveth that the Branches are as useful to support the Roots, as the Roots the Branches; and it is therefore no Wonder that so many Trees miscarry in Planting, when there are no Branches left on the Head.

The fourth Experiment is made on the Cedar of *Libanus*, grafted on the *Laryx*, which drops its Leaves in the Winter; yet maintains the Cedar in as flourishing Condition, as if it had been on a Tree that held the Leaves all the Winter; and the Part of the Graft, left below the Grafting, is in as good Health as the Part above the Grafting.

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II. *An Account of an extraordinary Cure by Sweating in Hot Turff; with a Description of the Indian Hot-Houses; by the Honourable Paul Dudley, Esq; F. R. S.*

**I**N the Year 1704. *Peter Coffin*, Esq; of *Exeter* in *New England*, being then seventy four Years of Age, had taken a great Surfeit, as 'twas thought, by drinking cold Water, in a very hot Day, and when he had heated himself in the Woods. This Surfeit settled principally in his right Side, but gave him a racking Pain all over his Body, and particularly depriv'd him of the Use of his right Arm: In this Condition he kept his House and Bed for nine Weeks, and his Recovery, considering his Age, was despaired of; when a Son of his, from whom I had the Relation, making a Visit to his Father, proposed the Sweating of him in Turff: The Father readily agreed to it, having used many Medicines, from other Physicians, without any Effect. Immediately Orders were given to cut a large Oven full of Turff; the Pieces might be to eighteen Inches square. The Turff it self was of *English* Gras, and only the Swerd, or Top of the Earth, with the Gras. Before the Turff was put into the Oven, the Doctor rubb'd